

GREAT WHALE IRON MINES LIMITED

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Report on

MAY 15 1959

Technical and Economic Developments

THE HEAVY exploration campaign conducted during the 1958 season on the main magnetite deposit of Great Whale Iron Mines, Limited, succeeded in its objective of outlining huge tonnages of iron ore.

The deposit, referred to as the "A" or Iron Mountain orebody, was found in 1957 and is unquestionably one of the largest magnetic anomalies ever recorded by an airborne magnetometer survey. It is located in New Quebec, 37 air miles east of Hudson Bay on a 152.8 square mile area held by the company under an exploration permit.

In addition to an aggressive programme of mapping, diamond drilling, ore testing and the conducting of a preliminary economic survey, permanent buildings for office, core shack and cook-house were constructed.

Crews employing three heavy-duty drilling machines started the first hole on March 23rd. By the end of the season, in late September, they had completed 35,924 feet of drilling. This drilling was carried out along a length of 16,255 feet, or over 3 miles, across widths of iron formation up to 2,000 feet, and to variable depths, averaging approximately 400 feet below surface. Significantly, 25,000 feet, or 70% of the drilling was in the iron formation, revealing the richness of this extensive magnetite deposit. There was also good uniformity of grade, a most encouraging condition which has persisted to depth. Two holes extended to vertical depths of 780 and 910 feet, respectively, showed the iron formation continuing downward with no change in grade or mineralogical composition.

Preliminary calculations, on the basis of the past season's work, indicate crude ore tonnage exceeding 600,000,000 tons to a depth of 500 feet. And the whole picture is even more significant in view of the fact that this impressive tonnage of iron ore follows the crest of a prominent ridge known as Iron Mountain. This upthrust rises to a height of 400 feet or so above the surrounding countryside, making the deposit extremely favourably situated for low-cost, large-scale open pit mining.

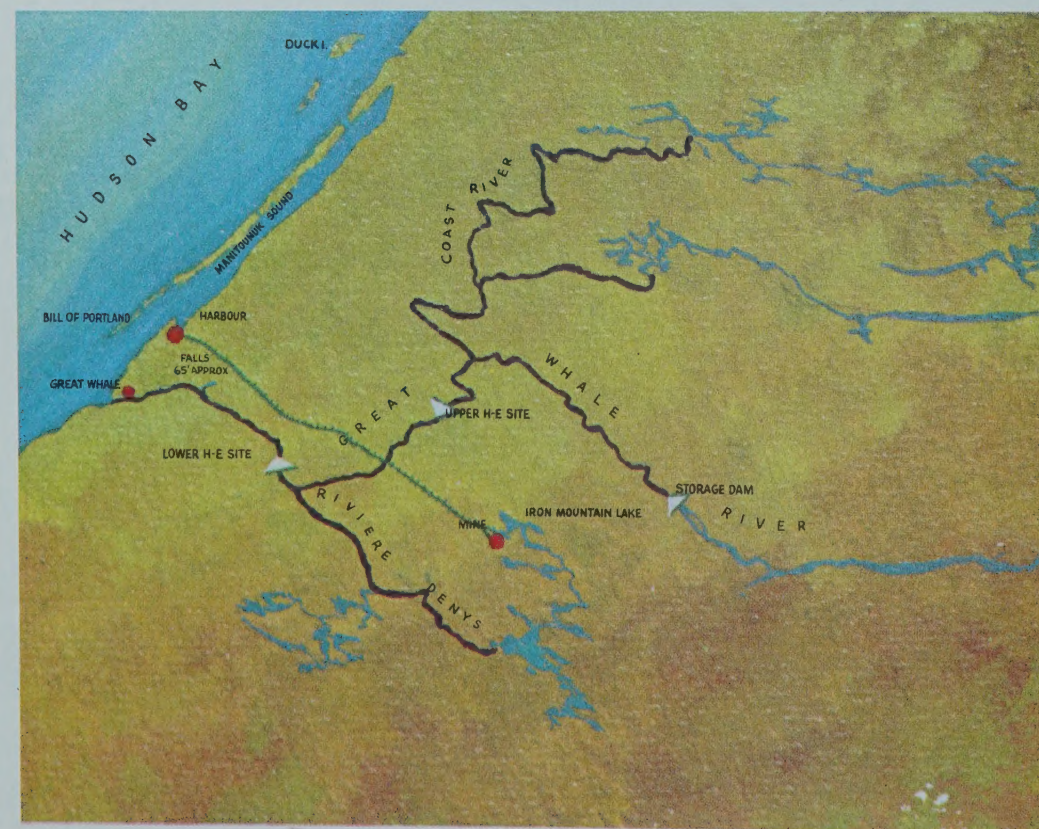
The 25,000 feet of diamond drill cores were split and crushed at the property for shipment to Lakefield Research Limited, Lakefield, Ontario. Here ore dressing and concentration tests were run. These tests show that the ore concentrates readily by straight magnetic separation and produces a high-grade concentrate of about 66% iron content, very low in phosphorous and sulphur, and containing no harmful impurities. Ratio of weight recovery is unusually favourable at one ton of concentrate to each two tons of crude ore.

Preliminary surveys of hydro-electric power sites, railway route and harbour facilities were conducted by Sir Alexander Gibb and Partners, consulting engineers. A map accompanying this report

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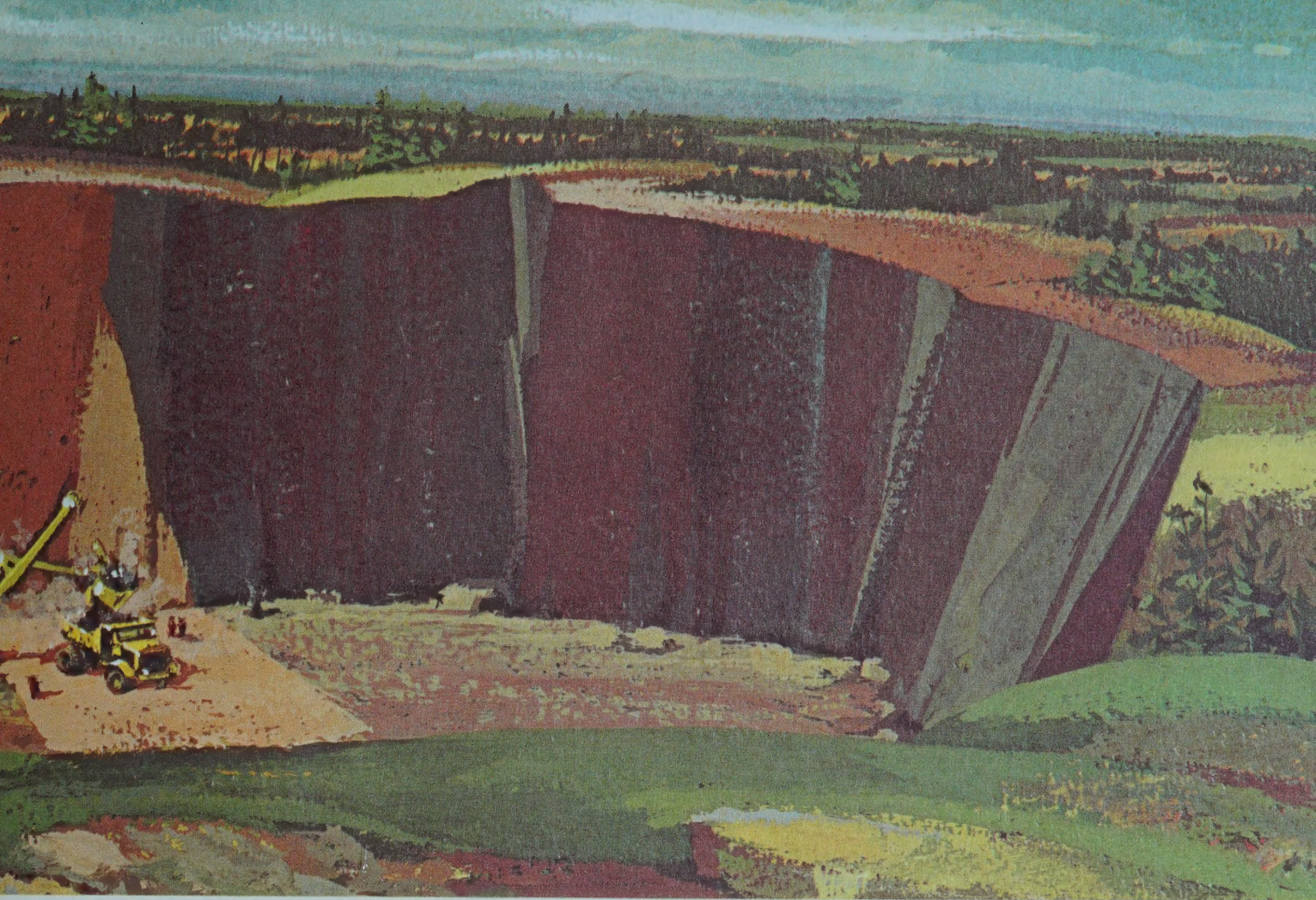
The extensive main orebody at Iron Mountain, diamond drilled along a length of over three miles and This illustration is intended to show a cross section of



STRATEGIC LOCATION OF GREAT WHALE IRON MINES LIMITED

The property of Great Whale Iron Mines Limited, as shown on this map, is favourably located with respect to development of power and to the construction of transportation facilities.

An economic survey of the area reveals excellent sites within 12 to 25 miles of the main orebody for the development of hydro-electric power, and the feasibility of constructing a 45-mile railway from the property to an ideal harbour site, 12 miles north of Great Whale Airport on Manitounuk Sound, Hudson Bay.



widths of up to 2,000 feet, contains a tremendous tonnage of iron ore amenable to low cost open-pit mining.
body as indicated by the diamond drilling programme.



Lower Hydro-electric power site 20 miles west of main orebody.



Completing camp buildings.



Diamond Drilling at Iron Mountain.



Examining drill core.

shows the strategic location of Iron Mountain and its orebody in relation to these essential sites. The firm advises that there will be no difficulty in locating the railway. This would be about 45 miles long to the main orebody. One major bridge will be required at the Great Whale River crossing, but the balance of the construction offers no problems, with the ore haul downhill to the harbour site.

The engineers' survey also points up that two highly suitable power sites are available on the Great Whale River. In addition there is a site which is essentially for storage purposes, but which can also be utilized for power. However, the lower site will provide ample power for an operation producing at least two million tons of concentrates per year, so the other sites would not likely be needed for some time.

A suitable harbour site has been surveyed on a bay lying some 12 miles north of Great Whale Airport, within the entrance of Manitounuk Sound. A large area of level ground adjacent to the bay is available as a storage area for concentrates, pellets and supplies. This would provide a sheltered harbour, with no problems from tides (normally 4-6 feet). The present length of the shipping season is approximately 100 days on the route to Europe through Hudson Strait, and about 150 days on the south haul to Moosonee. As in other places, experience will likely extend this shipping season, particularly as the north is opened up and more aids to navigation become available.

In the course of the past season's work in the area, the company's engineers discovered a new magnetite orebody, which is now known as the "D" orebody. This significant new discovery lies about 15 miles east of the main deposit, and about 60 miles from the harbour site on Manitounuk Sound. Preliminary estimates, based on surface outcrops, indicate at least 500,000 tons of ore per vertical foot, or 250,000,000 tons to an open pit mining depth of 500 feet. Concentration tests of surface material from this deposit showed it to yield a premium grade product of over 68% iron content at a much coarser grind than was required on the main orebody.

An additional exploration license covering 25 square miles, and embracing this important new orebody, has been granted to the company, and diamond drilling is scheduled to commence in April.

In close proximity to Hudson Bay and ocean shipping lane connections, and with timbered valleys and no permafrost, the area encompassing the Great Whale Iron Mines' orebodies offers conditions admirably suited to the establishment of major mining operations. Located at 55 degrees latitude north, the property lies considerably farther south than the important mining centres of Lynn Lake, Uranium City and Yellowknife, and is only 1½ degrees farther north than the City of Edmonton. It is accessible to major iron markets of the world via Hudson Strait.

In addition to these important advantages, the property's potential is considerably enhanced by the announced plans of the Government of Ontario to construct modern ocean-going facilities at Moosonee at the southern tip of James Bay. This opens up a direct route for the company's iron to the very heart of the giant Great Lakes industrial area. Given favourable freight rates, it would definitely appear that Great Whale iron will be competitive with most other iron ore producing areas.

To date \$500,000.00 has been expended in proving up the ore, which works out to the low development cost of one tenth of a cent for each ton of ore developed. During the 1959 season, which is already underway, the "D" orebody will be thoroughly drilled and otherwise tested as a part of the company's overall programme. This aggressive programme has one objective — namely, to supply world markets with large tonnages of a premium-grade product.

GREAT WHALE IRON MINES LIMITED.

April 15, 1959.